

Product Summary

The GESDBM24VC1 is designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multiplayer varistors (MLV) in consumer equipment applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

Feature

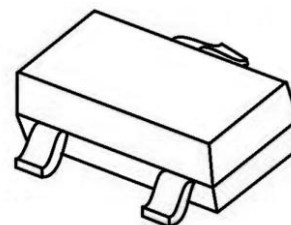
- Low reverse stand-off voltage: 24V
- 400W Peak pulse Power (8/20us)
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- Protects two bidirectional lines

Application

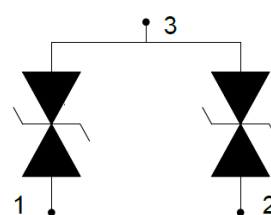
- Automotive application
- Personal Digital Assistants
- Notebooks / Desktops / Servers
- Portable Instrumentation

Marking:C24

SOT-23



Schematic diagram



Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage Air Model	$V_{\text{ESD}}^{1)}$	± 30	kV
IEC 61000-4-2 ESD Voltage Contact Model		± 30	
Peak Pulse Power	$P_{\text{PP}}^{2)}$	400	W
Peak Pulse Current	$I_{\text{PP}}^{2)}$	9	A
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260	$^{\circ}\text{C}$
Junction Temperature	T_J	125	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$
Operating Temperature	T_{OP}	$-40 \sim +125$	$^{\circ}\text{C}$

1) Device stressed with ten non-repetitive ESD pulses.

2) Non-repetitive current pulse $8/20\mu\text{s}$ exponential decay waveform according to IEC61000-4-5.

ESD Standards Compliance

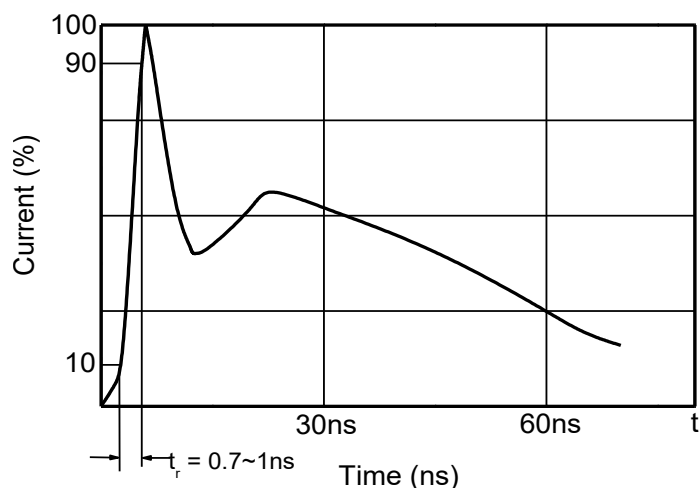
IEC61000-4-2 Standard

Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

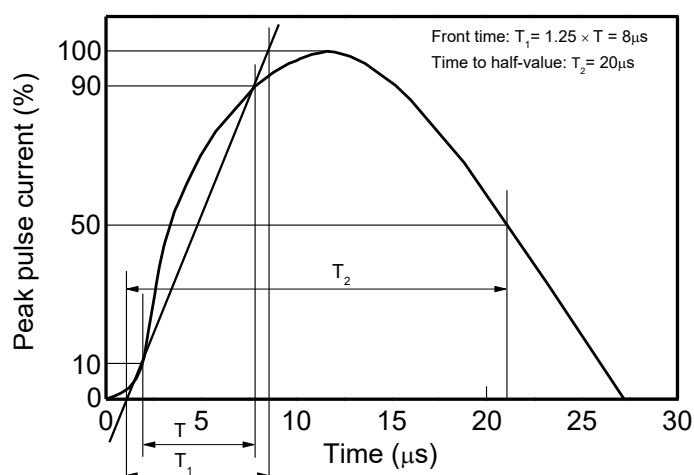
JESD22-A114-B Standard

ESD Class	Human Body Discharge V
0	0~249
1A	250~499
1B	500~999
1C	1000~1999
2	2000~3999
3A	4000~7999
3B	8000~15999

Contact discharge current waveform per IEC61000-4-2

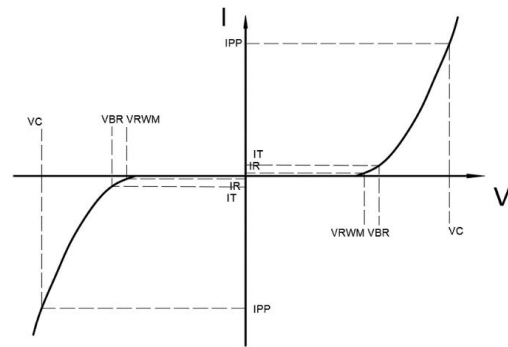


8/20 μs waveform per IEC61000-4-5



Electrical Parameter

Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage



V-I characteristics for a Bi-directional TVS

Electrical Characteristics($T_A=25^\circ\text{C}$ unless otherwise specified)

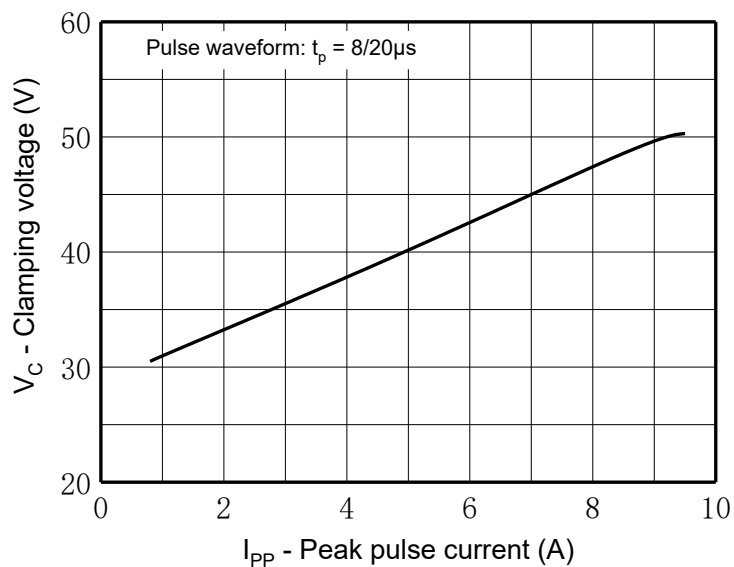
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse Stand-Off Voltage	$V_{RWM}^{1)}$				24	V
Reverse Leakage Current	I_R	$V_{RWM}=24\text{V}$			1	μA
Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	25.5			V
Clamping Voltage	$V_C^{2)}$	$I_{PP}=1\text{A}$		31		V
		$I_{PP}=9\text{A}$		50		V
Junction Capacitance	C_J	$V_R=0\text{V}, f=1\text{MHz}$		30		pF

1) Other voltages available upon request.

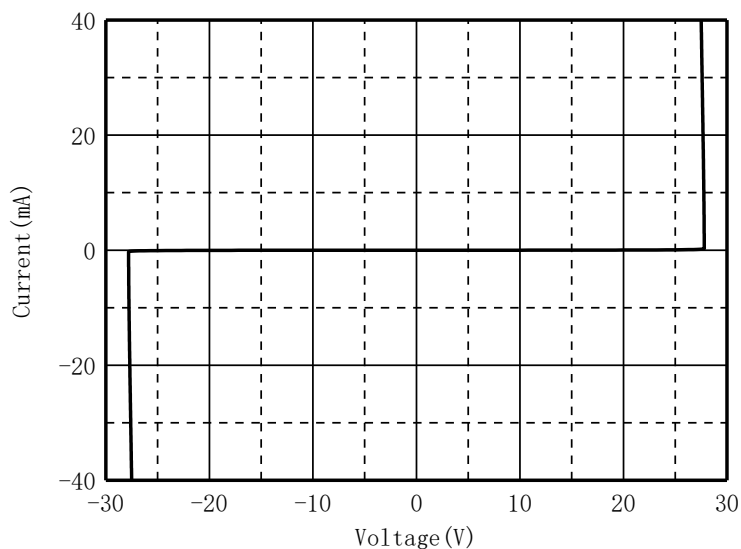
2) Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5.

Typical Characteristics

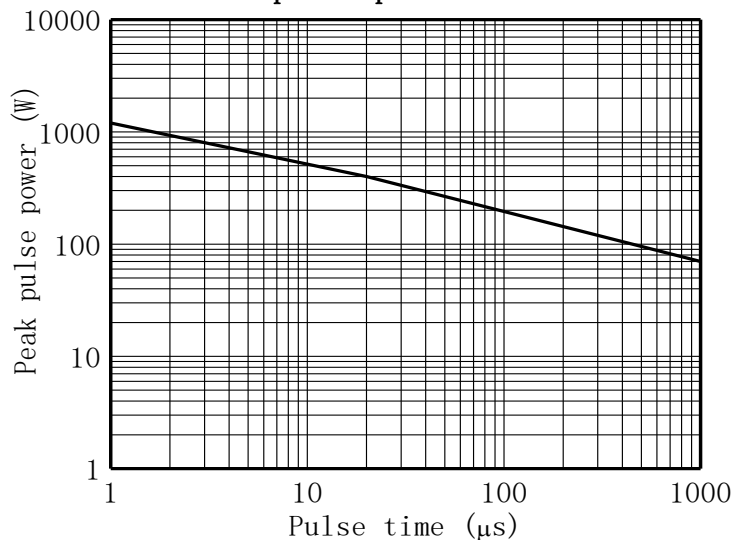
VC vs. IPP



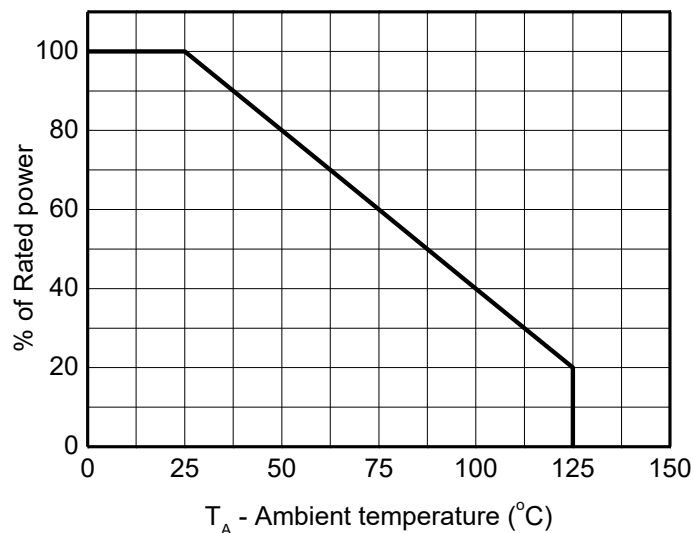
I-V Curve

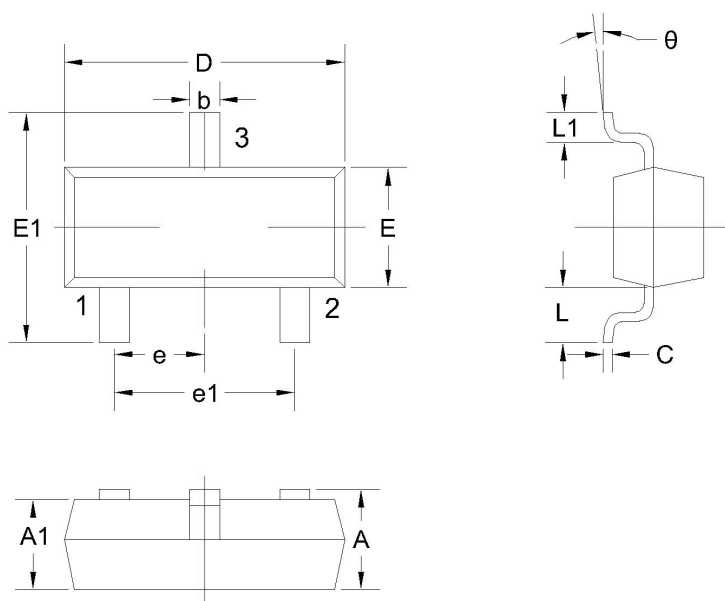


Peak pulse power vs. Pulse time



Power derating vs. Ambient temperature



SOT-23 Package Outline Dimensions


Dimensions in Millimeters					
Symbol	Min.	Max.	Symbol	Min.	Max.
A	0.9	1.15	e1	1.80	2.00
A1	0.9	1.05	L	0.55REF	
b	0.30	0.50	L1	0.30	0.50
C	0.08	0.15	θ	0°	8°
D	2.80	3.00			
E	1.20	1.40			
E1	2.25	2.55			
e	0.95TYP				

Attention:

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.